

What is claimed is:

1. A method of refurbishing a component of a process chamber, the component comprising a structure having a coating comprising a first metal layer over an intermetallic compound, the method comprising:
 - (a) removing the first metal layer to form an exposed surface that at least partially comprises the intermetallic compound;
 - (b) performing a penetrative bead blasting step by propelling blasting beads having a bead diameter of less than about 180 micrometers with a gas that is pressurized to a pressure of less than about 310 kPa towards the exposed surface, thereby removing the intermetallic compound from the exposed surface of the structure to form a cleaned surface; and
 - (c) forming a second metal layer over the cleaned surface.
2. A method according to claim 1 wherein (b) comprises bead blasting the exposed surface with blasting beads having a bead diameter of from about 80 micrometers to about 180 micrometers.
3. A method according to claim 1 wherein the exposed surface comprises crevices, and wherein the bead diameter is selected to be smaller than the average width of the crevices, whereby the blasting beads can penetrate into the crevices to remove the intermetallic material.
4. A method according to claim 1 wherein (b) comprises bead blasting the exposed surface by propelling blasting beads towards the exposed surface with a gas that is pressurized to a pressure of from about 172 kPa to about 310 kPa.
5. A method according to claim 1 further comprising a texturizing bead blasting step to texturize the cleaned surface to have a surface roughness average of from about 3.81 micrometers to about 8.89 micrometers.

6. A method according to claim 5 wherein the texturizing bead blasting step comprises propelling blasting beads having a bead diameter of from about 400 micrometers to about 1000 micrometers at the exposed surface with gas that is pressurized to a pressure of from about 276 kPa to about 414 kPa.

7. A method according to claim 1 wherein the structure comprises at least one of aluminum, titanium, stainless steel, copper and tantalum, and wherein the coating comprises at least one of aluminum, titanium, copper and chromium.

8. A method according to claim 1 wherein (a) comprises immersing a surface of the first metal layer in a cleaning solution comprising an acidic or basic solution to dissolve the first metal layer.

9. A method according to claim 1 wherein (c) comprises twin-wire arc spraying the second metal layer over the cleaned surface.

10. A component refurbished according to the method of claim 1, wherein the component is capable of being refurbished by the method at least about 15 times substantially without failure of the component.

11. A component refurbished according to the method of claim 1, wherein the component comprises at least a portion of one or more of an enclosure wall, a chamber shield, a target, a cover ring, a deposition ring, a support ring, an insulator ring, a coil, a coil support, a shutter disk, a clamp shield, and a substrate support.

12. A method of refurbishing a component of a process chamber, the component comprising a structure having a coating comprising a first metal layer over an intermetallic compound, the method comprising:

(a) immersing a surface of the first metal layer in a cleaning solution to remove the first metal layer from the structure, thereby forming an exposed surface that at least partially comprises the intermetallic compound;

(b) performing a penetrative bead blasting step by propelling blasting beads having a bead diameter of less than about 180 micrometers with a gas that is pressurized to a pressure of less than about 310 kPa towards the exposed surface, thereby removing the intermetallic compound from the exposed surface;

(c) performing a texturizing bead blasting step by propelling blasting beads having a bead diameter of greater than about 400 micrometers with a gas that is pressurized to a pressure of at least about 276 kPa towards the exposed surface, thereby forming a textured surface having a surface roughness average of from about 3.81 micrometers to about 8.89 micrometers; and

(d) twin-wire arc spraying a second metal layer over the textured surface.

13. A method according to claim 12 wherein (b) comprises bead blasting the top surface by propelling blasting beads having a bead diameter of from about 80 micrometers to about 180 micrometers towards the exposed surface with gas that is pressurized to a pressure of from about 172 kPa to about 310 kPa.

14. A method according to claim 12 wherein (c) comprises bead blasting the top surface by propelling blasting beads having a bead diameter of from about 400 micrometers to about 1000 micrometers towards the exposed surface with a gas that is pressurized to a pressure of from about 276 kPa to about 414 kPa.

15. A method according to claim 12 wherein the structure comprises at least one of aluminum, titanium, stainless steel, copper and tantalum, and wherein the coating comprises at least one of aluminum, titanium, copper and chromium.

16. A method according to claim 12 wherein (a) comprises immersing the surface in a cleaning solution comprising HF and HNO₃.

17. A method according to claim 12 wherein (d) comprises generating an electrical arc that at least partially liquefies a coating material, and passing a pressurized gas past the liquefied coating material to propel the liquefied coating material towards the textured surface.

18. A component refurbished according to the method of claim 12, wherein the component is capable of being refurbished by the method at least about 15 times substantially without failure of the component.

19. A component refurbished according to the method of claim 12, wherein the component comprises at least a portion of one or more of an enclosure wall, a chamber shield, a target, a cover ring, a deposition ring, a support ring, an insulator ring, a coil, a coil support, a shutter disk, clamp shield and a substrate support.